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The  
**DOLPHIN  
SAILING  
SIMULATOR**

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**USER'S  
MANUAL**

*Includes*

***Introduction to Sailing***

*by Annapolis Sailing School*



**Dolphin**  
Marine Systems, Inc.



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Special Thanks,

to the Special People, who are  
responsible for this software. . .

Ed, Pearl, Cheryl, David, Jennifer, Stephen, Monica,  
Barbara, Greg, and Jim

Dear User,

Thank you for the opportunity to present our systems to you. We at DOLPHIN take great pride in our work, and are constantly improving our software. Even after our systems are in your hands, we want to make them better.

No matter how much testing we do, some problems or ideas may not be discovered until the system has been run by many other people. Your comments and suggestions are important to us, so if you have a problem, an idea, or a suggestion, please tell us about it. We appreciate your patronage, and welcome a note or a call from you.

Thank You,

Jim Spaulding,  
President



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## ON YOUR HONOR...

For your convenience and ease of use, this system is **NOT** COPY PROTECTED. This creates savings which permit us to give you more value for your money. For example, you can run it on a variety of Hardware configurations and on a number of different machines (at home, office, yacht, etc. . . )

Please remember that the system is licensed **EXCLUSIVELY TO YOU**, and for the use of your friends, family and crew. In accepting delivery, you agreed **NOT** to copy it for others' use, nor to let them copy it.

In consideration for those who have legitimate multiple copy needs, we have established special licensing arrangements for schools, Public Safety and Education organizations, and Clubs. Please call us: we're happy to help you make such arrangements for your organization.

Thank you, in advance, for your care to protect this software, and thank you for your patronage. We hope that you have as much fun using this system as we have had creating it for you!

**GOOD SAILING!**

**. . . .The Dolphin Crew**



#### SYSTEM REQUIREMENTS:

- A. An IBM PC compatible computer
- B. 256k bytes of RAM (512k bytes is better)
- C. Two 5 1/4 inch floppy disk drives, or one floppy drive and a hard disk.
- D. Color/Graphics Adapter (CGA, EGA, or Hercules)

The *DOLPHIN SAILING SIMULATOR* has many programs, PLUS many files for each sailing area. . . a total for the eight sailing areas of over A MILLION BYTES! The programs are all loaded on your MASTER DISK, and files are loaded on eight VOYAGE disks.

Since the System is the most extensive Sailing Simulation in the business, it has been a remarkable achievement to get it to run on a Micro-Computer. However, **the more resources it has available, the better and faster it runs.** So to get the best performance and ease of use, the system can be custom tailored to fit your hardware configuration.

We would love to be able to do it for you, but since you are not with us, we ask you to bear with us through these relatively simple steps, which are necessary for everyone.



# Part I....

## Installation Guide

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### LET'S BEGIN!

**PLEASE REVIEW THESE INSTRUCTIONS BEFORE TRYING TO RUN YOUR SYSTEM!**

**YOUR SYSTEM MAY NOT WORK IF THESE INSTRUCTIONS ARE NOT FOLLOWED!**

**BEFORE YOU DO ANYTHING WITH YOUR DISKETTES, PLEASE REVIEW ALL STEPS, AND BACKUP YOUR DISKETTES!**

Select only **ONE** of the first five Installation procedures:

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## I. STANDARD DUAL DISKETTE CONFIGURATION:

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This is for IBM/PC compatible with MS/DOS or PC/DOS, two diskettes, a minimum of 256 kb standard memory, and a Color/Graphics Adapter (CGA, EGA, OR HERCULES).

### INSTALLATION ON STANDARD CONFIGURATION WITH DUAL DISKETTES:

STEP 1: Boot up your system as usual, with DOS diskette in A:

STEP 2: Place SAILING SIMULATOR MASTER DISK in drive B:

STEP 3: Type "B:INSTALL1" (if Hercules Adapter, type "B:INSTALH1").

TECH NOTE: INSTALL1 copies "DOLPSIM1" onto MASTER Disk as "SAILING.BAT", and COMMAND.COM from DOS Disk onto MASTER disk.

### RUNNING YOUR SAILING SIMULATOR ON DUAL DISKETTES:

STEP 1: BOOT SYSTEM FROM DOS DISK IN DRIVE A:

STEP 2: INSERT THE MASTER DISK IN DRIVE A:

STEP 3: INSERT THE VOYAGE DISK IN DRIVE B:

STEP 4: TYPE "SAILING"

The initial screen is surrounded by stars. If this doesn't appear, SOMETHING'S WRONG! Make sure that the instructions are followed, and that the correct disks are mounted. Install only once! If you can't spot the problem, refer to "TROUBLESHOOTING" (page I-10).

TECH NOTE: SAILING.BAT uses standard device assignments. The system may load slowly from dual diskettes, since each program, screen, and file must be accessed from a relatively slow device, so be patient ! (If you choose to add a Hard Disk or RAMDISK option to your system, it will cause a marked improvement in speed...contact your hardware dealer!)



## II. STANDARD HARD DISK CONFIGURATION:

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For IBM/PC compatible with MS/DOS or PC/DOS with one diskette and a hard disk, a minimum of 256 kb standard memory, a Color/Graphics Adapter (CGA, EGA, or Hercules).

### INSTALLATION ON BASIC CONFIGURATION WITH HARD DISK:

- STEP 1: Boot up your system as usual, with DOS on hard disk C:
- STEP 2: Place SAILING SIMULATOR MASTER DISK in drive A:
- STEP 3: Type "A:INSTALL2" (if Hercules Adapter, type "A:INSTALH2").
- STEP 4: If have PATH statement, hit [cr] if ASSIGN.COM not found.
- STEP 5: Install Voyage Disks (page I-9).

TECH NOTE: The INSTALL2 routine creates a directory DOLPHIN on your hard disk, then copies the programs and files onto Hard Disk and "DOLPSIM2" into the DOLPHIN Directory as "SAILING.BAT".

### RUNNING YOUR SAILING SIMULATOR ON HARD DISK:

- STEP 1: BOOT THE SYSTEM FROM YOUR C: DRIVE
- STEP 2: INSERT THE MASTER DISK IN DRIVE A:
- STEP 3: TYPE "CD DOLPHIN"
- STEP 4: TYPE "SAILING"

The initial screen is surrounded by stars. If it doesn't appear, SOMETHING'S WRONG! Make sure that the instructions are followed, and that the correct disks are mounted. Install only once! If you can't spot the problem, refer to "TROUBLESHOOTING" (page I-10).

TECH NOTE: "SAILING.BAT" sets up DEVICE assignments as A=A B=C. ASSIGN.COM must be in the MAIN directory or a PATH statement must be in the AUTOEXEC.BAT file so SAILING.BAT can find ASSIGN.COM.



### III. RAMDISK WITH DUAL DISKETTES CONFIGURATION:

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Be sure your MS-DOS or PC-DOS operating system supports RAMDISK or VDISK operation, and you have at least 512 kb of standard memory, with Color/Graphics Adapter (CGA, EGA or Hercules).

#### INSTALLATION ON RAMDISK CONFIGURATION WITH DUAL DISKETTES:

STEP 1: Make sure the VDISK.SYS file is installed in your system, and that the CONFIG.SYS file has this statement:

DEVICE = VDISK.SYS 300 512 2  
(NUMBERS CAN BE LARGER-NOT SMALLER!)

STEP 2: Boot your system as usual, with DOS disk in drive A:

STEP 3: Put the Master disk in drive B:

STEP 4: Type "B:INSTALL3" (if Hercules, type "B:INSTALH3").

TECH NOTE: INSTALL3 routine copies "DOLPSIM3" as "SAILING.BAT", and COMMAND.COM, and ASSIGN.COM onto the MASTER DISK.

#### RUNNING YOUR SAILING SIMULATOR ON DUAL DISKETTES:

STEP 1: BOOT THE SYSTEM FROM YOUR DOS DISK

STEP 2: INSERT THE MASTER DISK IN DRIVE A:

STEP 3: INSERT THE SAILING AREA DISK IN DRIVE B:

STEP 4: TYPE "SAILING"

The initial screen is surrounded by stars. If it doesn't appear, SOMETHING'S WRONG! Make sure that the instructions are followed, and that the correct disks are mounted. Install only once! If you can't spot the problem, refer to "TROUBLESHOOTING" (page I-10).

TECH NOTE; The "SAILING.BAT" routine copies the sailing area files onto RAMDISK (C:) before load. ASSIGN.COM must be in the MAIN directory or a PATH statement must be in the AUTOEXEC.BAT file so SAILING.BAT can set up DEVICE assignments as A=C B=C.



## IV. RAMDISK WITH HARD DISK CONFIGURATION:



Be sure your MS-DOS or PC-DOS operating system supports VDISK or RAMDISK operation, and you have at least 512 kb of standard memory, with Color/Graphics Adapter (CGA, EGA, or Hercules).

### INSTALLATION ON RAMDISK CONFIGURATION WITH HARD DISK:

STEP 1: Make sure VDISK.SYS file is installed in your system, and that the CONFIG.SYS file has this statement: `DEVICE=VDISK.SYS 300 512 2` (NUMBERS CAN BE LARGER-NOT SMALLER!)

STEP 2: Boot as usual from drive C

STEP 3: Put Sailing Simulator Master Disk in drive A

STEP 4: Type "A:INSTALL4" (if Hercules, type "A:INSTALH4").

STEP 5: If have PATH statement, hit [cr] if ASSIGN.COM not found.

STEP 6: Install Voyage Disks (page I-9).

TECH NOTE: INSTALL4 creates a directory DOLPHIN on hard disk, copies programs and files onto Hard Disk and "DOLPSIM4" into the DOLPHIN Directory as "SAILING.BAT".

### RUNNING YOUR SAILING SIMULATOR ON HARD DISK

STEP 1: BOOT THE SYSTEM FROM YOUR C: DRIVE

STEP 2: INSERT THE MASTER DISK IN DRIVE A:

STEP 3: TYPE "CD DOLPHIN".

STEP 4: TYPE "SAILING"

The initial screen is surrounded by stars. If it isn't, SOMETHING'S WRONG! Make sure that the instructions are followed, and the correct disks are mounted. Install only once! If you can't spot the problem, refer to "TROUBLESHOOTING" (page I-10).

TECH NOTE; "SAILING.BAT" copies the sailing area files onto RAMDISK (D:). ASSIGN.COM must be in main directory, or a PATH statement must be in AUTOEXEC.BAT file so "SAILING.BAT" can set up DEVICE assignments as A=C B=D.



## V. "DO-IT-YOURSELF" HARD DISK CONFIGURATION/INSTALLATION

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The Install Routines (INSTALL2 and INSTALL4) may not work well with "Integrated" or "MSDOS SHELL" Software such as FRAMEWORK, 1DIR, PCTOOLS, SIDEKICK, etc. which require care in setup to avoid conflict between the way disk and memory is allocated and the SAILING SIMULATOR. We can't "guess" how to set up your system, but give you the tools to set it up in the way you want.

### "DO-IT-YOURSELF" INSTALL for HARD DISK:

- STEP 1: Create a DOLPHIN Directory
- STEP 2: Copy MASTER Disk into the DOLPHIN Directory
- STEP 3: Copy ASSIGN.COM into the DOLPHIN Directory
- STEP 4: Select and change DOLPSIM# file to fit your needs.
- STEP 5: Copy DOLPSIM# file into DOLPHIN Directory as SAILING.BAT
- STEP 6: Set up "shell" to execute "SAILING" in DOLPHIN Directory
- STEP 7: Load Voyage Disks (page I-9).

\* Generally, a few changes to the DOLPSIM2, or DOLPSIM4 Batch files before you copy it over as SAILING.BAT will enable you to set up the system to load and run just fine with any configuration or other software package.

### RUNNING YOUR SAILING SIMULATOR SYSTEM ON HARD DISK:

- STEP 1: BOOT THE SYSTEM FROM YOUR C: DRIVE
- STEP 2: INSERT THE MASTER DISK IN DRIVE A:
- STEP 3: SWITCH TO DOLPHIN DIRECTORY
- STEP 4: EXECUTE "SAILING"

The initial screen is surrounded by stars. If it doesn't appear, SOMETHING'S WRONG! Make that the instructions are followed, and the correct disks are mounted. If you can't spot the problem, refer to "TROUBLESHOOTING" (page I-10).



(Continued)



In order to get the best fit with your system, it is easy for you to create your own installation and load routines, using ours as a basis. Please review SYSTEM "ORGANIZATION" (page I-9) first.

The INSTALL#, DOLPSIM# and SAILING routines are MS-DOS BATCH Files that you can edit using any editor, to create whatever you like. There are NO HIDDEN FILES, and all files are copied with standard copy commands. Just review the INSTALL2.BAT or INSTALL4.BAT batch files and you'll be able to INSTALL the system and set it up to work just the way you want!

Except for the standard Dual Diskette System, the *DOLPHIN SAILING SIMULATOR* must reassign drive addresses to allocate files effectively. Therefore, ASSIGN.COM from your DOS must be available to the SAILING.BAT routine either in the same directory or through a PATH statement in the AUTOEXEC.BAT file. If there is a PATH to your Directory, then hit [cr] when asked to.

**SPECIAL FEATURES:** The SAILING SIMULATOR has no options for special hardware or software features, including Special GRAPHICS ADAPTERS (such as a PARADISE Board, etc.), special PRINTERS, EXPANDED MEMORY BOARDS, etc. and assumes that all such features are set up and operating and will look "standard" prior to execution of the SAILING SIMULATOR Programs.

Most such features are enabled by hardware options and switches or by software that is loaded and executed when the Operating System is BOOTED (generally by the AUTOEXEC.BAT, CONFIG.SYS, ANSI.SYS and VDISK.SYS files). **YOU MUST SET UP THESE FILES AND ANY DEVICE HANDLERS FOR THOSE FEATURES.**

**GRAPHICS ADAPTERS:** If you do not get TEXT ON THE FIRST SCREEN and GRAPHICS ON THE SECOND SCREEN you see, please check your Graphics adapter manual. The Graphics Adapter must be initialized to accept Standard IBM CGA commands for 80 column color text and 40 column (Medium Resolution) four-color Graphics. Hercules Adapters may run using the PUBLIC DOMAIN software SIMCGA on your master system diskette.

**EXPANDED MEMORY and RAMDISK Options:** Some expanded memory boards use special software to set up the RAMDISK. **BE VERY CAREFUL WITH THIS OPTION!!** If it is not set up right, it may even cause writing onto it, causing data on your HARD DISK to be destroyed! Please read your RAMDISK Manual carefully!

OTHER FEATURES, SUCH AS PRINTERS, "TURBO-BOARDS", SPEED AND COMMUNICATIONS OPTIONS MAY ALSO REQUIRE SPECIAL SETUP. . . PLEASE REFER TO THEIR MANUAL.



# INSTALLATION/CONFIGURATION CONSIDERATIONS

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## SYSTEM ORGANIZATION OF THE SAILING SIMULATOR SYSTEM

**OPERATING SYSTEM.** . . It is assumed that you will be running on a "STANDARD" MSDOS or PCDOS SYSTEM. Any other system or the use of an "MSDOS SHELL" or "INTEGRATED SOFTWARE" may require SPECIAL INSTALLATION Considerations.

**PROGRAMS.** . . All programs are delivered on the MASTER Disk, and MUST reside together on a single disk drive (either the MASTER disk in Drive A: or copied to a HARD Disk).

**VOYAGE FILES.** . . are "READ ONLY" Files delivered on the VOYAGE Disk, and MUST reside together on one disk drive (either the VOYAGE disk in Drive B:, or copied and re-assigned to either HARD DISK C: or RAMDISK (C: OR D:).

**SYSTEM FILES.** . . (DMS5CNTL & DMS5SCOR) If you want to use more than one machine and retain SCORES and ease of use, both SYSTEM FILES must stay on the MASTER Disk in Drive A:

... OTHERWISE. . .

... If you will always use only one HARD DISK Machine, then change ASSIGN statement in SAILING.BAT to either;

ASSIGN A = C B = C (for HARD DISK MACHINE) or

ASSIGN A = C B = D (for RAMDISK WITH HARD DISK)

## MEMORY CONFIGURATIONS THAT SUPPORT THE SAILING SIMULATOR SYSTEM:

**256 to 512 KB.** . . FILES AND SCREENS ON DISKETTE OR HARD DISK (200 kb needed for program loading)

**at least 512 KB.** . . YOU MAY INSTALL A RAMDISK OR VDISK OPTION. The files and screens can reside in memory, speeding up the execution. (300 kb needed for lesson file and screen storage)

## DISK CONFIGURATIONS THAT SUPPORT THE SAILING SIMULATOR SYSTEM:

**TWO DISKETTES.** . . MASTER DISK IN DRIVE A: & VOYAGE DISK IN DRIVE B: The system may be run on two floppy disks, but operates most effectively from a hard or RAMDISK (VDISK).

**DISKETTE & HARD DISK.** . . MASTER & VOYAGE DISKS

LOADED ONTO HARD DISK The system can reside on the Hard Disk, speeding up execution, but must reassign Disk addresses:

(A=A B=C, or A=A B=D, or A=C B=C, or A=C B=D)



## VI. HARD DISK INSTALLATION OF VOYAGE DISKS

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After the MASTER SYSTEM is installed and running successfully with any single voyage disk, it is easy to install the additional voyage disks on your Hard Disk, as follows. Please check the instructions with VOYAGE DISK . . . if an upgrade to MASTER is required, perform that first. Check that your system works fine with any required upgrades.

### STANDARD HARD DISK INSTALLATION OF VOYAGE DISKS:

STEP 1: Boot system as usual.

STEP 2: Insert sailing module Diskette in Drive A:.

STEP 3: Type "A:Mininstall".

STEP 4: Type "SAILING" to test new sailing area.

### DO-IT-YOURSELF HARD DISK INSTALLATION OF VOYAGE DISKS:

STEP 1: BOOT SYSTEM, then type "CD "

STEP 2: type "ASSIGN"

STEP 3: type "CD DOLPHIN"

STEP 4: Place SAILING AREA Disk in Drive A:

STEP 5: type "COPY A:\*.\*)"

STEP 6: REBOOT SYSTEM and run SAILING to test new SAILING AREA.



# Troubleshooting

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The initial screen is surrounded by stars. If it doesn't appear, **SOMETHING'S WRONG!** Please check that the **INSTALL PROCEDURE** ran properly, and that **"NON-STANDARD"** features are set up right. Make sure you selected the correct install routine for **your** system.

The second screen is a blue graphics screen with white boats and white Dolphins. If you hear music but do not see this screen, your Graphics Adapter may not be standard IBM CGA, EGA or Hercules Compatible, or it may not be initialized for IBM/CGA mode (Consult the Color Graphics Adapter Manual).

If the system "hangs" on either the first screen or later when it is loading the voyage disk, you may have an installation that did not work. Usual problem areas are an **ASSIGN.COM** file not available to **SAILING.BAT** or a wrong set-up of the **RAMDISK** option.

With the **RAMDISK** Option, the Sailing Simulator needs a **RAMDISK** of at least 300 KB. If you don't get a good copy of the **SAILING AREA** Files onto **RAMDISK** (C: or D:), it may cause **"TOO MANY FILES"**, **"BAD DISK"**, **"FILE NOT FOUND"** or **"DISK NOT READY"** errors.

Some systems give erroneous error messages. For example, an "out of memory" error can be caused by an EGA color adapter not set up right, or by a **RAMDISK** that is too large, leaving less than 200 kb for the system to run in.

For some unexplained reason, some disk drive controllers can conflict with the music buffer. . . if your system hangs up with some strange sounds when music was playing, **REBOOT** and try running again. . . without music! It may avoid the problem. . .

Install your system just **ONCE**. Repeated installations **MAY** confound the system. If you feel the installation routine was unsuccessful, and you feel you have to try the installation again, you must clean up the previous installation:

1. Reboot your system.
2. Erase all programs in the **DOLPHIN** directory.
3. Do a **"RMDIR"** to erase **DOLPHIN** from main directory.
4. Then proceed with another installation routine.

If you still can't get it to operate, we **MAY** be able to assist (in some cases). Feel free to call us at (215) 269-6800. We will try to get it to run on any system, but we **CAN'T GUARANTEE** that it is compatible with every feature, nor that we will be able to set up a **"NON-STANDARD"** configuration. It may be necessary for you to run **INSTALL** using a standard DOS configuration.



# Part II.... User's Guide

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This user guide complements the instructions and help screens built into the system. Press **F1** to access the HELP screens.

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# Visitor's Log

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| INITIALS | NAME | YACHT NAME |
|----------|------|------------|
|          |      |            |
|          |      |            |
|          |      |            |
|          |      |            |
|          |      |            |
|          |      |            |
|          |      |            |
| VIP      |      |            |



# Beginning The Voyage

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*Welcome to the Dolphin Sailing Simulator!* The Voyage is the closest simulation of reality we can devise. It includes screens to provide you with different views and perspectives of sailing experiences. The introductory screen will appear on the display, and then you are ready to begin. Please enter your initials. The first time, also enter your name.

Your score is based on your performance in each function of each course. . . but to save and track your score, you must enter your initials the same way each time you start.

Only eight (8) players' scores can be saved, so if all eight spaces are used, everyone else must be a "Visiting Important Person" (V.I.P.), and use "VIP"    as initials. The VIP score is only tracked for the session, and not saved for later reference.

If you are new to the system, a brief presentation will follow. You can turn off the music the second time you sign on if you wish. After you have entered your yacht name, a  will reenter it each time you sign on.

On most screens, you can proceed to the next screen by hitting the space bar or carriage return . If you wait too long it may proceed automatically, unless a selection **MUST** be made!



# Voyage Functions

After you have selected a voyage disk, a voyage, and a boat, there are a number of major screens (functions) you can select with the function keys on the left or top of your keyboard.

Cockpit View . . . . . for the Helmsman  
Lookout View . . . . . for the Lookout  
Instrument Panel . . . . . for the Skipper  
Navigation Chart . . . . . for the Navigator  
Tactical Chart . . . . . for the Game Player  
Boat & Sail Selection . . . for the Crew  
Help, Exit, and Restart are also available.

The actions of the boat or crew is controlled by the number pad or cursor control keys on the right of your keyboard. Some alpha-numeric commands are also used:

“A” for autopilot in the Lookout screen

“R” for Radar ranging in the Instrument screen

“Y” for yes in response to a question

**FUNCTION SELECTION:** You can move between the Functions (screens) with the function keys (  -  ). Hit the same key more than once to select secondary or tertiary functions.

|                         |                                                                                     |                                                                                     |                         |
|-------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------|
| HELP                    |  |  | EXIT                    |
| RESTART                 |  |  | RESTART                 |
| SAIL SELECTION/SET/TRIM |  |  | LOOKOUT                 |
| INSTRUMENTS             |  |  | NAV CHART/COURSE SELECT |
| COCKPIT                 |  |  | TACTICAL VIEW/ZOOM      |



# Keyboard Controls



Please put the Keyboard Template near your keyboard. The keyboard template is repeated on a number of the screens.

**STEERING:** On most screens you can steer the boat (turn the wheel and rudder) by using the number pad or the cursor control keys, on the right of your keyboard:

LEFT ARROW KEY

[4] steers LEFT  
(PORT side)



RIGHT ARROW KEY

[6] steers RIGHT  
(STARBOARD side)

Once you turn it, the RUDDER STAYS IN THAT POSITION, until you turn it back to the center. The boat will continue to turn in that direction until you straighten it out! If you are sailing backward, the rudder steers you in the opposite direction!

**SAIL CONTROLS:** On most screens you can adjust the sails (a,b,c, for Foresail, Midsail, Aftsail) by using the number pad or the cursor control keys, on the right of your keyboard:

|                       | SAIL | a | b | c |                         |
|-----------------------|------|---|---|---|-------------------------|
| UP ARROW KEYS (7,8,9) |      |   |   |   | DOWN ARROW KEYS (1,2,3) |
| "ease off", or let    |      |   |   |   | "tighten up", or bring  |
| sail out (ease sheet) |      |   |   |   | sail in (tighten sheet) |

You CANNOT control the boat at all in the LOOKOUT screen, it just continues sailing as you left it. If you turn on autopilot ("A") it will steer to the course you have set.



## Help Screens

Help screens are available throughout the system. You can select the HELP screen at any time by hitting the  key. When the HELP screen are finished you will return to the point you pressed the  key.

**YOU MOVE BETWEEN FUNCTIONS (SCREENS) WITH THE FUNCTION KEYS (F1-F10).**

|              |    |     |                  |
|--------------|----|-----|------------------|
| Help         | F1 | F2  | Exit             |
| Restart      | F3 | F4  | Restart          |
| Sail Control | F5 | F6  | Lookout view     |
| Instruments  | F7 | F8  | Nav Chart/Course |
| Cockpit View | F9 | F10 | Tactical View    |

**YOU CAN CONTROL ACTIVITIES ON EACH SCREEN WITH CURSOR CONTROL OR NUMBER KEYS (ON THE RIGHT HAND SIDE) for example...**

|            |         |       |  |
|------------|---------|-------|--|
|            | ease    | sails |  |
| steer left |         |       |  |
|            |         | 5     |  |
|            |         |       |  |
|            | tighten | sails |  |

After you have seen the HELP screens once or twice, you can avoid them by answering "n" (key ) or "no" () when the explanations are offered, or by hitting  EXIT or  RESTART once they have started, to return to the last function.

The simulation stops while in a "Help" screen and the boat doesn't sail anywhere.

Keyboard controls are summarized above, and a shorter version is included at the bottom of screens on which they fit.



# Voyage Disk Selection



After a few introductory screens, you will see the Voyage Disk Selection Screen, which presents the names of all eight charts or areas you can sail. (Voyage Disk #1 is sold with MASTER System, all other Voyage disks are sold separately and must be purchased to sail in those areas)

```
* * * * Sailing Simulator * * * * *
*   The Sailing Areas are: (disk ?)   *
* >>>> Chesapeake Bay                <<<< *
* ( 2 ) San Francisco Bay              *
* ( 3 ) Boston & Newport                *
* ( 4 ) Florida Keys                   *
* ( 5 ) Chicago & Lake Michigan         *
* ( 6 ) New York & Long Island          *
* ( 7 ) Southern California            *
* ( 8 ) Seattle & Vancouver Bay        *
* * * * * Copyright 1987, DMS * * * * *

Please select #, 'Y'es, or [cr]
```

You may select an area by typing the appropriate number, or hit the space bar until the line is highlighted. You may then select that chart by typing "y" (Y) or "yes" (YES), when it is highlighted. If you are running on diskettes, be sure the correct disk is loaded in Drive B:, or you'll get a FILE NOT FOUND error.

You can get back to this screen from anywhere in the system by hitting the F2 Function Key, and selecting a new area (function #5 F5), on the Exit Function Select Screen.



## Voyage Selection

Once you have selected a Voyage Disk, the list of voyages is presented for you to select a Voyage. The voyage is displayed until you answer "Y" or "YES" to the question "Is this OK?".

|                          |                |      |
|--------------------------|----------------|------|
| PLEASE SELECT A VOYAGE.. |                |      |
| ( 1 )                    | Nice Reach     |      |
| >>>>                     | Upwind Beat    | <<<< |
| ( 3 )                    | Downhill Run   |      |
| ( 4 )                    | Variable Winds |      |
| ( 5 )                    | Cruising Race  |      |
| ( 6 )                    | Fleet Race     |      |
| ( 7 )                    | Match Race     |      |
| ( 8 )                    | Storm Weather  |      |
| ( 9 )                    | Long Voyage    |      |

Please select #, 'Y'es, or [cr] ...

There are nine voyages, each of them designed to present you with a different type of challenge:

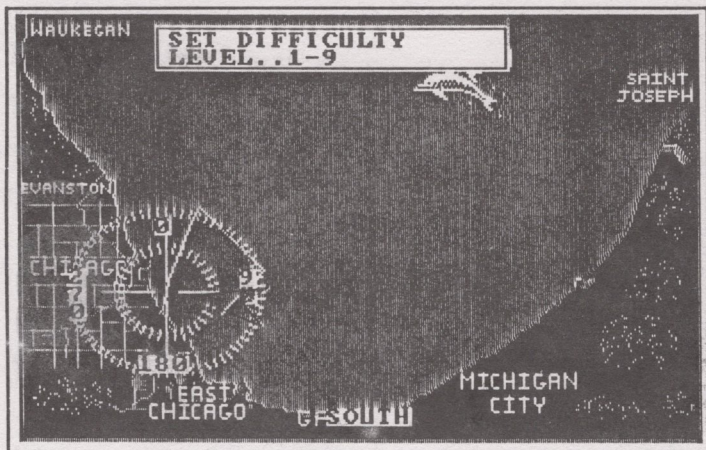
|              |               |               |
|--------------|---------------|---------------|
| Nice reach   | Variable wind | Match race    |
| Upwind beat  | Cruising race | Storm weather |
| Downhill run | Fleet race    | Long voyage   |

The start and end points of each leg will be displayed in words, then plotted on the screen. Once you have selected the preferred voyage, you may select a difficulty level, and then proceed to setting your planned course.





Once you have selected the voyage, you may select a difficulty level from 1 to 9.



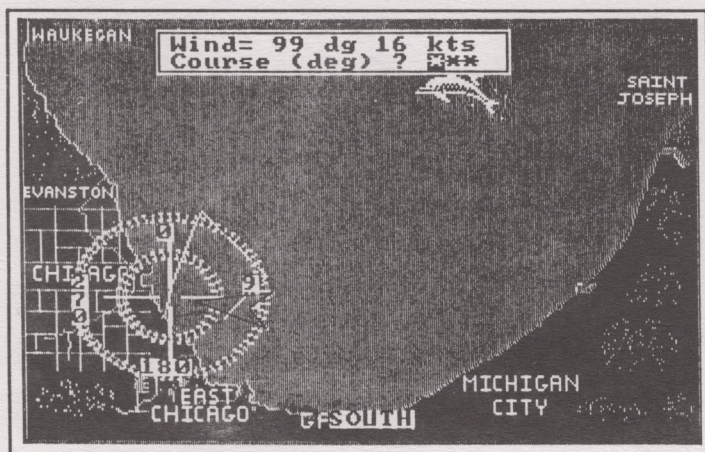
Difficulty level 1 is the least difficult (winds about half normal) and 9 is the most difficult (winds about twice normal). The normal difficulty level selection is "5".

Other factors are affected by the difficulty level, including the point at which the boat will capsize, collide, or run aground. Once you have selected your difficulty level, you may proceed to the setting of your planned course for the first leg of the Voyage.



## Course Set

This screen shows the Voyage course as well as the current weather conditions, so you can make intelligent navigational decisions in determining your planned course.



You may then select the planned course by typing in the preferred heading in degrees (1-360). You may then go to the selection screen (next Page) to select a boat, sails, etc.

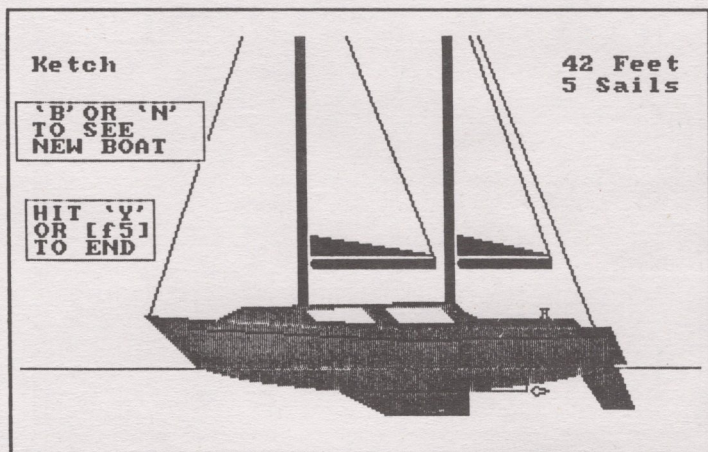
Since you cannot always sail exactly on the course which the Voyage shows, plan a course for a tack if the wind is coming from the direction toward which you must go.

You must select this function  to change your planned course. . . Points are awarded based on how well you match your actual course with the Voyage course and planned course.





After selecting your course, you can select the boat you want to sail from four different boats.



There are four boats from which to select (by hitting "B"). Each boat has different heeling, handling, and speed characteristics, as well as a different sail inventory;

- 14 ft. catboat with one sail
- 19 ft. catamaran with 3 sails
- 29 ft. sloop with 5 sails
- 42 ft. ketch with 7 sails

Press "B", "N", or "NO" to switch to the next boat. Once you see the correct one, hit "Y" or "YES" to choose it. You may return to this screen at any time and select a new boat by pressing .



## Sail Selection

This screen allows you to select from your inventory of sails to fit weather conditions and the planned course. You can select from a Spineraker, Ghoster, Genoa, Jib, Staysail, Mainsail or Mizzen (depending on what is available on the boat you selected).

|                                                                                                                                                 |                    |                      |   |   |   |   |   |   |   |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|---|---|---|---|---|---|---|---|---|
| Speed 4.3 kt<br>Heel 12 deg                                                                                                                     | Course 18 d        | True Wind 99 d 15 kt |   |   |   |   |   |   |   |   |   |
| SELECT<br>CORRECT<br>SAILS                                                                                                                      |                    |                      |   |   |   |   |   |   |   |   |   |
| HIT 'V'<br>OR [F5]<br>TO END                                                                                                                    |                    |                      |   |   |   |   |   |   |   |   |   |
|                                                                                                                                                 |                    |                      |   |   |   |   |   |   |   |   |   |
| Sail a:<br>Jib                                                                                                                                  | Sail b:<br>Mains'l | Sail c:<br>None      |   |   |   |   |   |   |   |   |   |
| Select sail(s) with number pad.                                                                                                                 |                    |                      |   |   |   |   |   |   |   |   |   |
| <table border="1"><tr><td>^</td><td>^</td><td>^</td></tr><tr><td>a</td><td>b</td><td>c</td></tr><tr><td>v</td><td>v</td><td>v</td></tr></table> |                    |                      | ^ | ^ | ^ | a | b | c | v | v | v |
| ^                                                                                                                                               | ^                  | ^                    |   |   |   |   |   |   |   |   |   |
| a                                                                                                                                               | b                  | c                    |   |   |   |   |   |   |   |   |   |
| v                                                                                                                                               | v                  | v                    |   |   |   |   |   |   |   |   |   |

To select the sail, use the up arrow or down arrow keys or number pad (1,2,3,7,8,9) on the right hand side of your keyboard. (a,b,c, for Foresail, Midsail, Aftsail)

These are the same keys used on the other screens to ease and tighten the sail, (to pull or release the mainsheet or Genoa Sheet), so don't confuse the functions!

Points are awarded based on how well matched your sails are to the conditions and planned course. If you are underpowered (too little sail), you will go slower than necessary and lose points. If overpowered (too much sail), you will go faster than is safe and you may capsize! (minus TWENTY points, END exercise!)





This screen shows the set of your sails and allows you to adjust them to fit weather conditions and the planned course.

|                                      |                           |                                                                                                                                                           |   |   |   |   |   |   |   |   |   |
|--------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|
| Speed 8.0 kt<br>Heel 8 deg           | Course 18 d               | True Wind 99 d 15 kt                                                                                                                                      |   |   |   |   |   |   |   |   |   |
| SET SAILS<br>RIGHT FOR<br>CONDITIONS |                           |                                                                                                                                                           |   |   |   |   |   |   |   |   |   |
| HIT 'V'<br>OR [F5]<br>TO END         |                           |                                                                                                                                                           |   |   |   |   |   |   |   |   |   |
|                                      |                           |                                                                                                                                                           |   |   |   |   |   |   |   |   |   |
| Sail a: Jib<br>Sail b: Mains' l      | RAISE<br>SAIL(s)<br>LOWER | <table border="1"> <tr> <td>^</td><td>^</td><td>^</td> </tr> <tr> <td>a</td><td>b</td><td>c</td> </tr> <tr> <td>v</td><td>v</td><td>v</td> </tr> </table> | ^ | ^ | ^ | a | b | c | v | v | v |
| ^                                    | ^                         | ^                                                                                                                                                         |   |   |   |   |   |   |   |   |   |
| a                                    | b                         | c                                                                                                                                                         |   |   |   |   |   |   |   |   |   |
| v                                    | v                         | v                                                                                                                                                         |   |   |   |   |   |   |   |   |   |

To raise or lower the sail, (to pull or release the halyards), use the "a", "b", "c" (for foresail, Midsail, Aftsail) up and down arrow keys, or number pad keys (1,2,3 or 7,8,9) on the right hand side of the keyboard.

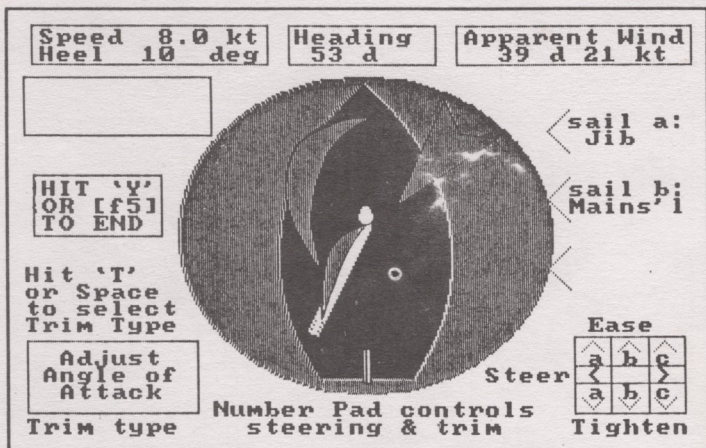
These are the same keys used on the other screens to ease and tighten the sail, (to pull or release the sheets), so don't confuse the functions!

Points are awarded based on how well matched your sails are to the conditions and Planned course. If you are underpowered (too little sail), you will go slower than necessary and lose points. If overpowered (too much sail), you will go faster than is safe and you may capsize! (minus TWENTY points, END exercise!)



# Sail Trim

This screen shows the trim of your sails and allows you to adjust the “angle of attack”, “twist” (vertical curve, shown as “outside” of sail shape) and “shape” (horizontal curve, shown as inside of sail shape).



Select the trim type (lower left corner) with a “t” or “space” bar. Trim type can also select to go back and change sail set or even select new sails.

Use the “a”, “b”, “c” (for foresail, Midsail, Aftsail) up and down arrow keys, or number pad keys (1,2,3 or 7,8,9) on the right hand side of the keyboard to adjust the trim (ease or tighten).

These are analogous to tightening the foresail sheet, moving the foresail fore and aft or in or out from the centerline, and tightening or easing the boom vang and outhaul on the mainsail.



(Continued)



For simplicity, we have used “angle of attack”, “twist” and “shape” since these are the effect on the sail caused by these adjustments, and not the physical device used to cause the effect (which changes from boat to boat and rig to rig).

The following table shows some examples of this:

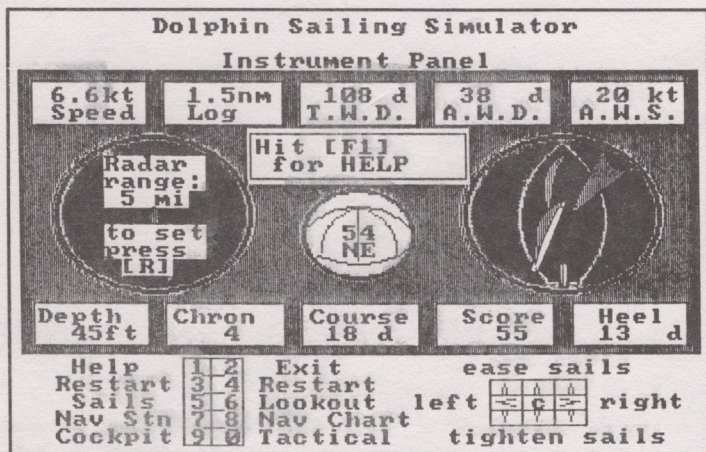
| Trim Type                                         | Foresail                                                              | Physical Device<br>Mainsail           |
|---------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------|
| Angle<br>of<br>Attack                             | Foresail sheet<br>In/out board track<br>Fore/Aft Block<br>Location    | Main sheet                            |
| Twist                                             | Foresail Sheet<br>Fore/Aft Block<br>Location<br>Backstay              | Boom Vang<br>Backstay                 |
| Shape                                             | Foresail Sheet<br>In/out Board<br>track<br>Fore/Aft Block<br>Location | Outhaul<br><br>Backstay               |
| Other Devices<br>not considered<br>in this lesson | Leech Lines<br>Whisker Poles                                          | Leech Lines<br>Cunningham<br>Downhaul |

For example, the angle of attack, twist, and shape of the Genoa are all affected by easing or tightening the Genoa Sheet, as well as the Track and Block Positions. The angle of attack, sail shape and sail twist is what matters. . . not the mechanical device that causes it!



## Instrument Panel

This screen looks like the navigation station on some modern boats, but includes instruments that are almost never found on small boats today! We put them there to better inform you of the status of the boat and to help make for a more complete sailing experience.



Instructions are always at the bottom of the screen. The controls operate exactly as in the Cockpit function, so you can sail from this position. But watch your heel indicator!

This screen includes a tactical display, with wind, rudder and sail position as well as sail twist & shape, (just like in the Cockpit), PLUS a Radar Screen which shows all obstructions within a range determined by hitting "R" [R].

You should check the Radar occasionally to spot potential dangers such as ships, land formations, and bridges. (Remember: a collision or grounding will cost you TWENTY points and end the exercise!)





# Instrument Panel

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## (Continued)

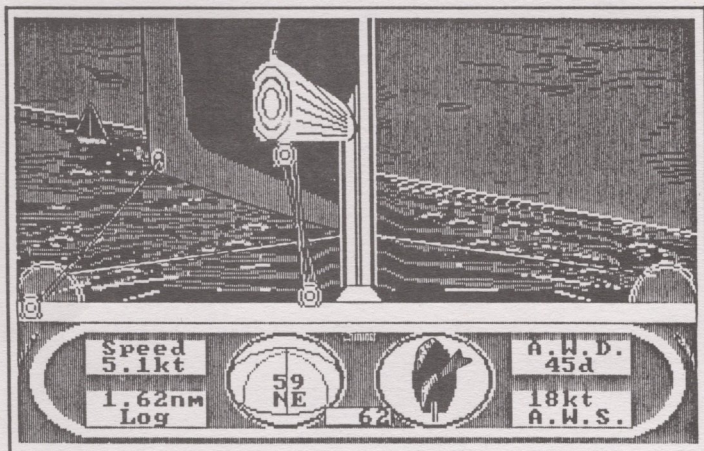
You will need to know the terminology used with all of these instruments, in the exercise and in the real world, so PLEASE EXAMINE THIS LIST ! Instruments and displays on the station are:

|                             |                                       |
|-----------------------------|---------------------------------------|
| <b>Speed</b>                | Speed of the boat thru the water      |
| <b>Log</b>                  | Distance traveled thru the water      |
| <b>T.W.D</b>                | True Wind direction                   |
| <b>A.W.D</b>                | Apparent Wind direction               |
| <b>A.W.S</b>                | Apparent wind speed                   |
| <b>RADAR</b>                | Image for 4 mile radius around boat   |
| <b>COMPASS</b>              | Magnetic Compass (Heading)            |
| <b>TACTICAL<br/>DISPLAY</b> | (Wind, Sail & Rudder)                 |
| <b>Depth</b>                | Depth of the Water                    |
| <b>Chron</b>                | A clock of lesson time                |
| <b>Course</b>               | Navigational course (Planned Heading) |
| <b>Score</b>                | Your score on the Sailing Area        |
| <b>Heel</b>                 | Angle boat is heeling from vertical   |



## F9 Cockpit View

This screen represents a view forward from the cockpit and displays some basic instruments. The horizon tilts to indicate the boat heeling, and boats and buoys are visible when nearby and almost directly ahead.



Your instruments include boat speed & log, A.W.D. & A.W.S. (apparent wind direction & speed), magnetic compass, and tactical display that shows apparent wind, sails and rudder positions. These help you to understand the mechanics of what's going on, while helping you to compensate for the lack of the clues which you get sailing a real boat, such as the position of the sail, the tell-tales, and the "feel" of the wheel and boat.

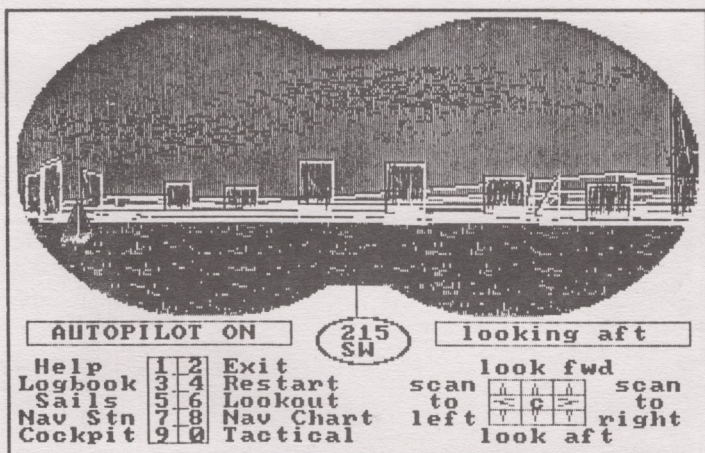
The controls are the same as on the instrument panel, and you may sail from this screen most of the time, but watch your heeling! You may capsize, losing TWENTY points and ending the exercise!



# Lookout View



This screen shows binocular view of a 90 degree area around your boat. It is capable of scanning in any direction; the compass tells you in which direction you are looking. (It takes some time for it to calculate when it starts up, so be patient).



The keyboard controls are shown on the bottom. To scan the binoculars to the left or right, press the appropriate arrow key. Press an up-arrow key to look forward, a down-arrow key to look aft. The corner keys look 60 degrees port or starboard from forward and aft.

These are the same keys that control the boat on other screens, but here they **ONLY MOVE THE BINOCULARS**. . . . NOT THE BOAT! The boat continues to sail exactly as you left the controls! If you were turning, it will continue to turn. . . just like in the real world! If you press "A", the autopilot will be switched on, and the boat will turn toward, and maintain your course setting.

The direction being viewed is shown in the right hand message block. The status of the boat is shown in the left hand message block. You may check the Lookout screen every few minutes to view nearby objects and potential dangers. You may also enjoy trying to indentify some of the popular landmarks in the Sailing Area.



# Navigation Chart

An important part of Sailing is knowing at all times where you are as well as where you want to go. This screen shows you a map of the Sailing Area with basic navigational information: the exercise course, the planned course, a compass, wind direction, and your boat's present location.



You should review your position & progress on the course, using this chart often enough that you can stay pretty close to your planned Course (since sailing conditions will change throughout the exercises and may affect your heading).

Points are awarded according to how closely your actual course matches your planned and exercise courses. If you run aground or collide with something, you lose TWENTY points, and end the exercise, so watch it in the shallow water areas marked off in blue!

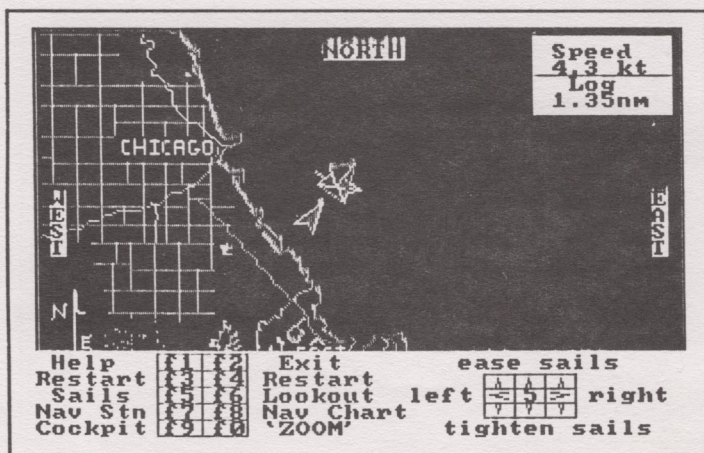




# Tactical View



This screen shows you an overhead image of the immediate locale (one Quadrant of the Navigation Chart) as well as a small image of your boat, present location, and wind direction and some instrument data.



It does not show you courses, like the Navigation Screen, but it shows you other moving objects, like the radar screen on the navigation station. The boat does look more “real”, shows you the heeling and sail and rudder positions and moves faster than on other screens.

If you hit the key additional times, you will “ZOOM” in on the boat and nearby objects, but no land or shallow water can be seen when in “ZOOM” mode, so avoid using it close to land.

The boat can be controlled the same way as in the cockpit and navigation station. This is a great screen for sailing in open waters, or on long straight courses. However, “ZOOM” is great for races, to see how you are doing versus your competitors!



# Performance Analysis

You are also scored on the total of your best series in each sailing area versus the high score for that sailing area.

| Scores for Jim on Daydream JTS |            |            |
|--------------------------------|------------|------------|
| Sailing Area                   | your score | high score |
| Chesapeake Bay                 | 80         | 80         |
| San Francisco Bay              | 40         | 182        |
| New England                    | 40         | 40         |
| Florida Keys                   | 80         | 80         |
| Lake Michigan                  | 765        | 2030       |
| New York                       | 50         | 50         |
| Southern California            | 70         | 70         |
| Seattle & Vancouver            | 20         | 20         |

Press ANY key to proceed.

| Course Scores on Lake Michigan |            |            |
|--------------------------------|------------|------------|
| courses                        | your score | high score |
| Nice Reach                     | 94         | 94         |
| Upwind Beat                    | 340        | 340        |
| Downhill Run                   | 121        | 278        |
| Variable Winds                 | 60         | 60         |
| Cruising Race                  | 50         | 50         |
| Fleet Race                     | 40         | 40         |
| Match Race                     | 30         | 30         |
| Storm Weather                  | 20         | 20         |
| Long Voyage                    | 10         | 10         |

Press ANY key to proceed.



# Performance Analysis



You may even compare your overall score with the individual scores of the other players.

| Summary of all Player's Scores |             |        |
|--------------------------------|-------------|--------|
| Players                        | Yachts      | Scores |
| JTS Jim                        | Daydream    | 1145   |
| CCS Cheryl                     | Daydream2   | 0      |
| FWH FRANK                      | MARYJANE    | 278    |
| GRG Greg                       | Dungeons    | 130    |
| JRR Jerry                      | Maybe       | 0      |
| JLS Jennifer                   | Mistress    | 182    |
| STS Stephen                    | Steve's toy | 51     |
| VIP Visitor                    | Jerry's jug | 81     |

Press ANY key to proceed.

Earning a good score in all of these exercises will help you to build your sailing knowledge and to enhance your total understanding of the mechanics of sailing and the broad variety of experiences you must deal with to enjoy and succeed in the sailing experience.

The system is designed to complement and supplement other learning experiences, but is no substitute for "hands on experience". . .

## SO GET OUT THERE AND DO SOME SAILING!

**Exit**

The voyage is over when you reach the last mark on the course. However, you may exit at any time by using the **F2** key during the Voyage to take you back to the course select screen and then Function #8 **F8** to Exit the Course.

```
* * * Sailing Simulator * * * * *
*   THE EXIT FUNCTIONS ARE :   *
* ***** RETURN I didn't mean it! ***** *
*   2   FREEZE action and wait   *
*   3   HELP (Instructions)       *
*   4   Select NEW Boat          *
*   5   Select NEW Voyage        *
*   6   Select NEW Area          *
*   7   Check SCORES            *
*   8   EXIT System              *
* * * * * Copyright, 1987 * * * * *

Select Option # or Function Key
```

This also takes you back to the exit select screens, where a new course and different weather conditions can be selected for the voyage.

**or****Restart**

Use the **F3** or **F4** key at anytime to return to the last function. Your score will be averaged between all the restarts.



# Hints

---



Allow yourself at least fifteen minutes for a Voyage. . . although the Boat moves across the Sailing Area faster than a real boat, it responds as closely to a real boat as simulation allows us.

The boat reacts about as quickly as a real boat, and there is the temptation to try to rush it. . . which can put it totally out of control! **AVOID HITTING ANY KEY TOO MANY TIMES !** One to five taps on the correct key usually gets the desired result.

You can sail from the cockpit, instrument panel, tactical screens, or navigation screens using exactly the same controls. Doing so, you experience different perspectives and visual information, expanding the learning experience and the fun!

You **CANNOT** control the boat at all in the LOOKOUT, course set, or sail set screens. It just continues sailing as you left it, which means that it may turn upwind, the sails may luff and the boat may go into irons if rudder is centered and sails are balanced.

There are several dangers that can strike with little or no warning, resulting in a **TWENTY** point loss and the end of the Voyage: Running Aground, Collision, Capsize, Dismasting, Accidental Gybe, Thunderstorm, Fog, etc . . . . so **BE PREPARED!**

You are scored on how effectively you hold course, so it's best to change your Planned course (  ) or change your sails (  ) whenever there is a major change in the Voyage course or conditions (wind speed or wind direction).



## Hints

---

You should move between the screens fairly often (every few minutes). When sailing, the skipper must constantly be aware of the environment: changing conditions, and boats or objects in the area (especially lighthouses, buoys and 100,000 ton ships).

The boat moves at different speeds along the course, going fastest on the tactical screens and slowest in the lookout screen. Higher speeds reduce the warning time when you are about to run aground or capsize. So watch yourself!

When you exit, you can examine your score up-to date. You are scored on your best performance in the Voyages for the current sailing area versus the high score for that course.



# Part III... Introduction to Sailing

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## **"INTRODUCTION TO SAILING"** by Annapolis Sailing School

### **Table of Contents**

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| Why A Boat Sails .....  | III-3 |
| Points of Sail .....    | III-4 |
| Turning Maneuvers ..... | III-4 |
| Heeling .....           | III-6 |
| Sail Trim .....         | III-7 |
| Sailing Terms .....     | III-9 |

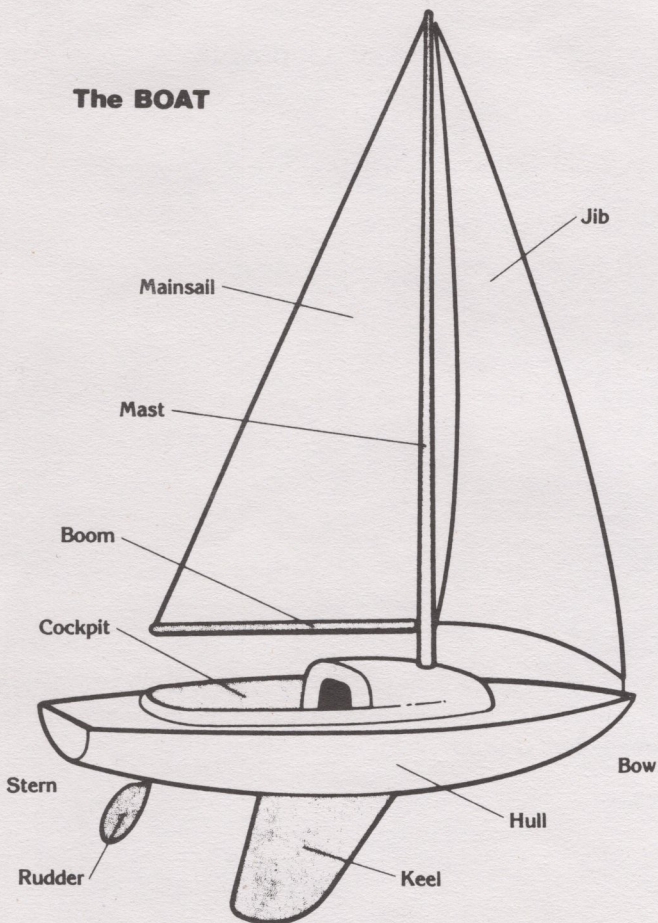
If you're ready to move your sailing adventures from your computer to the water, call Annapolis Sailing School for information about locations and various sailing courses/vacations - 1-800-638-9192.



# INTRODUCTION TO SAILING

Welcome to the exciting world of sailing. This introduction was prepared by Annapolis Sailing School (from their sailing primer for new students) to help beginners with the basics of sailing.

## The BOAT

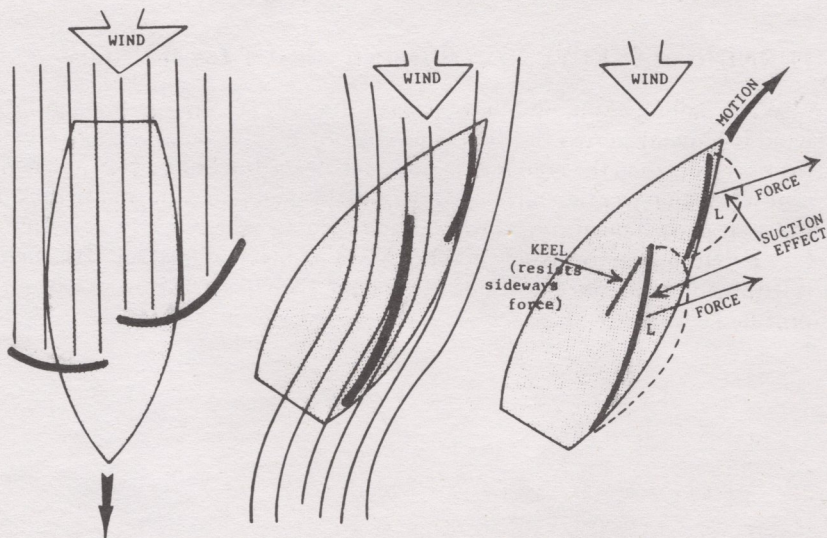




## WHY A BOAT SAILS



It is easy to understand why a boat with a sail raised will be pushed along before the wind. But how is it that modern rigs can sail into the wind, even if only  $45^{\circ}$ ? For the answer to this, study the drawings below:



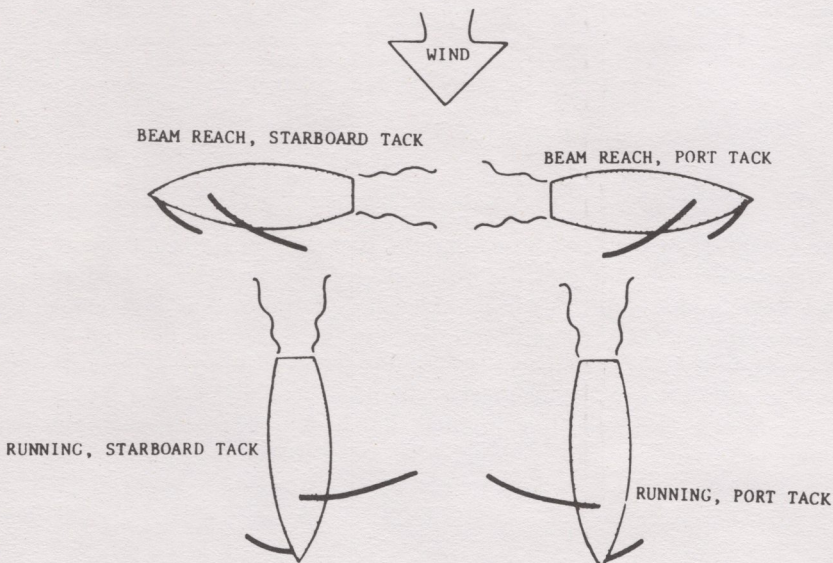
The curvature of the sails, much like the curvature of the wings on an airplane, channel the wind in such a way that a low pressure area, or suction effect is created on the surface of each sail. This difference in air pressure is what drives the boat. The driving force does not act in the same direction as the boat is pointed, but at roughly a  $90^{\circ}$  angle to the wind direction. Even so, because of the boat's keel, which resists sideways motion, the boat moves forward, in the direction it is pointed. There will be some sideways movement as well. Thus there is some difference between the direction the boat is headed, and the track it makes going through the water. That difference is called leeway.



There are three Points of Sail: close-hauled, reaching, and running. These are not three precise courses relative to the wind, but rather, approximate courses. A close-hauled boat is being sailed as close to the wind as possible without luffing sails. A running boat has the wind directly aft or astern. Between the two is a large area broadly termed reaching. However, reaching is generally further refined into close reach, beam reach, and broad reach. There are no precise boundaries between these points of sail.

### TURNING MANEUVERS — COMING ABOUT and JIBING

When sailing along on a beam reach, the sails are on one side, and the wind is blowing across the boat from the other. If the wind is coming over the port side, then the boat is on a port tack. If the boat turns 180°, the wind is now coming over the starboard side, and the boat is on a starboard tack. If the boat is on a dead run, with the wind coming exactly over the stern, its tack is determined by the side of the boat the main is trimmed on. If the main is trimmed on the starboard side of the boat, then it is considered to be on a port tack. And vice versa.

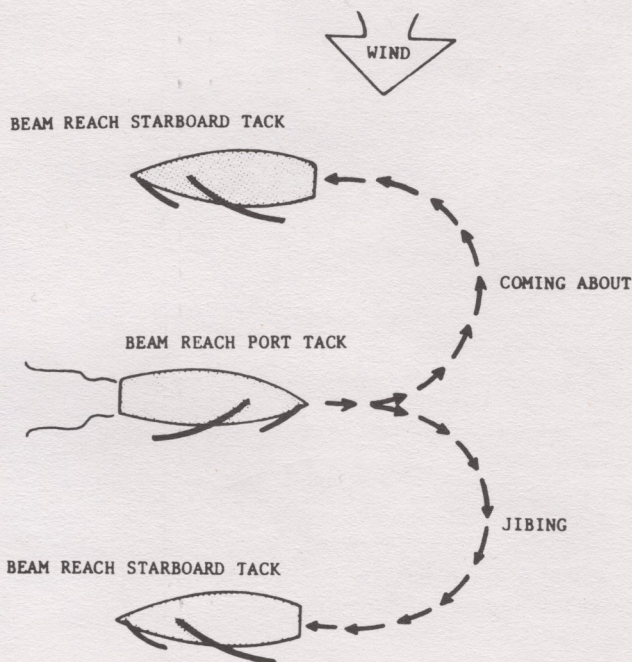




## TURNING MANEUVERS (Continued)



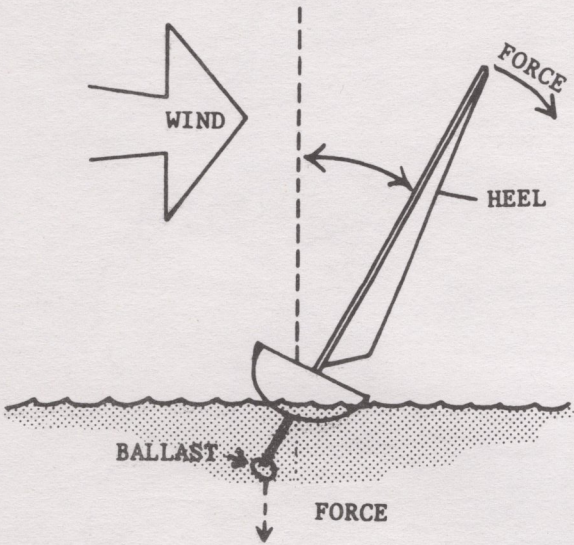
There are two ways a boat can turn from one tack to the other. First, she may luff or head up into the wind and continue turning through the eye of the wind until her sails fill on the other tack. This is called *coming about* or *tacking*. Secondly, she may bear off or head away from the wind until the wind is dead astern and continue turning until the wind swings her sails across to the opposite side. This is called *Jibing* or *Gybeing*.





## HEELING

The force of the wind against the sails also causes the boat to lean away from the wind, or to heel. Heeling is normal and nothing to be feared, although it takes a while to get used to it.

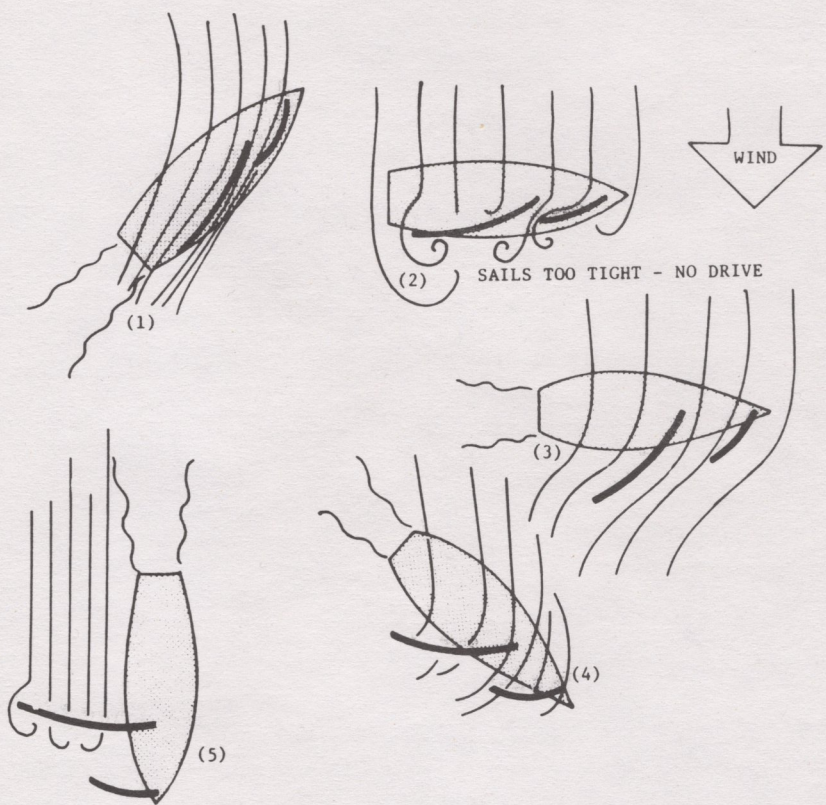


The weight of the ballast counteracts the heeling force and prevents the boat from falling over, or capsizing.





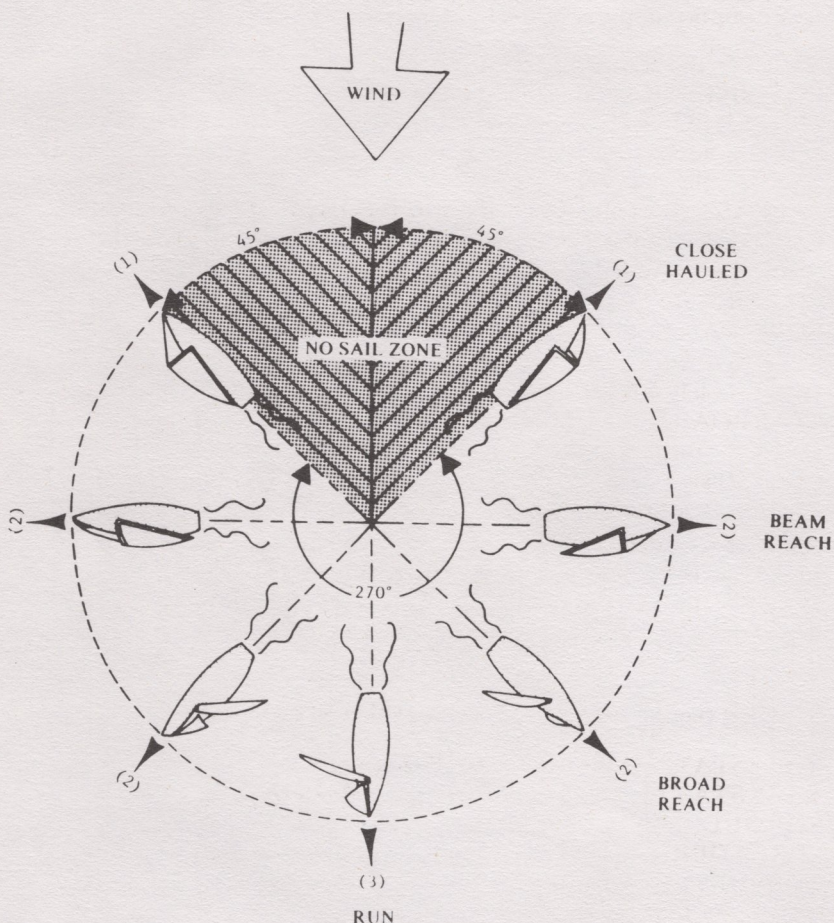
It is important that the sails be trimmed correctly relative to the direction of the wind. In general, when sailing to windward the sheets should be pulled in to trim both sails close-hauled (1). At all other times (3), (4), (5) sheets should be let out until the sail luffs (flutters) then pulled slightly. **“When in Doubt - Let it out.”**





## SAIL TRIM (Continued)

The sails are trimmed differently for every point of sail. For close-hauled, the sails are trimmed in (using the sheets) tightly, (1). As the boat is turned away from the wind to a reach (2) the sails must be eased out farther and farther until, when running, (3) they are out almost at right angles to the wind.





## SAILING TERMS

---



*A sailor starts and ends with the wind —*

WINDWARD, WEATHER - toward the wind

LEE, LEEWARD - away from the wind

### **Some important parts of the boat include:**

HULL — the main body of the boat

BOTTOM — the hull below the waterline

CENTER BOARD—movable keel-like device to restrict sideways movement

KEEL — a structural member of wood or metal projecting downward from the bottom of the boat

BALLAST — weight fastened to the keel to give the boat stability

RUDDER — a device to which the tiller is attached to allow the boat to be steered

TILLER — lever attached to the rudder so you can control it

BOW — front end

STERN — back end

PORT — left side facing forward

STARBOARD — right side facing forward

DECK — the top of the boat, where you walk

COCKPIT — a recessed area in the deck where you sit

CLEAT — a fitting to which one fastens a line

WINCH — a device for “snubbing” or taking the strain on a line

BEAM — the widest part of the hull

MAST — the vertical pole to which the sails are attached

BOOM — a spar attached to the mast to which the foot of the sail is attached

### **Standing rigging is made of wire or cable and includes:**

FORESTAY — runs from masthead to the bow

BACKSTAY — runs from masthead to the stern

SHROUDS — run from the mast to each side

SPREADERS — hold the shrouds away from the mast

TOPPING LIFT — supports the boom when the sail is not hoisted



**Running rigging is usually made of dacron rope and includes:**

**HALYARDS** — lines that hoist and lower the sails

**SHEETS** — lines that control the angle of sails to the wind

**OUTHAUL** — line that pulls out a sail

**DOWNHAUL** — line that pulls down a sail

**Most sails are triangular. Major parts of the sails are:**

**HEAD** — the top corner

**TACK** — the lower front corner

**CLEW** — the lower back corner

**LUFF** — the front edge, between head and tack

**FOOT** — the bottom edge, between tack and clew

**LEECH** — the back edge, between clew and head

**BATTEN** — strip of wood or fiberglass used to stiffen the back edge of a sail

**BOLT ROPE** — a reinforced rope sewn into the foot and luff of a sail

**Miscellaneous, useful words & phrases - sailing has an almost infinite number of them. Some you might find handy:**

**TACKING OR BEATING** — zigzagging against the wind

**RUNNING** — sailing with the wind

**REACHING** — sailing across the wind

**LUFFING** — fluttering of a sail along its front edge

**CAST OFF** — to release or untie a line

**TO MOOR** — to tie up to a dock or buoy

**COMING ABOUT** — to steer the boat into and through the wind bow first

**JIBE or GYBE** — same as above but turning so the stern crosses the wind

**TELLING TALE** — yarn fastened to the shrouds to show wind direction

**MAN OVERBOARD!** — self explanatory

**AGROUND** — stuck on the bottom





## **Dolphin Sailing Simulator System**

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